THE LITTLE LORIKEET IN SOUTH AUSTRALIA, WITH NOTES ON THE HISTORICAL STATUS OF OTHER LORIKEETS

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ABSTRACT

The Little Lorikeet *Glossopsitta pusilla* is generally regarded as a declining species in South Australia, breeding in the South East, and a rare, non-breeding autumn/winter visitor to the Adelaide–Mount Lofty Ranges region. We examined historical records and museum specimens of the Little Lorikeet and found breeding records for the Mount Lofty and southern Flinders Ranges and Kangaroo Island. The authenticity of these records is considered. We conclude that in the early days of European settlement the Little Lorikeet was a common, breeding species in the Adelaide–Mount Lofty–southern Flinders Ranges region. It has declined critically in this region, and is now encountered with any degree of regularity only in the South East.

INTRODUCTION

During discussions held in 2002 concerning proposed amendments to the threatened species schedules of the *National Parks and Wildlife Act* (1972), the South Australian status of the Little Lorikeet *Glossopsitta pusilla* was considered. It was generally assumed to be a declining autumn/winter visitor now rarely recorded except, and perhaps still relatively consistently, in the South East border region. One of us (PH) undertook to check the records of the South Australian Museum. An initial assessment of these records suggested that at least in the 19th century the Little Lorikeet was more than just a seasonal visitor to South Australia. In addition to skin specimens, we found a number of South Australian clutches of eggs, purportedly of the Little Lorikeet, which had prompted an initial appraisal by former Curator Shane Parker, including the question of possible misidentification. We therefore decided to examine all available records in greater detail in order to clarify the historical status of this species in South Australia, and try to resolve possible misidentification of Little Lorikeet eggs with those of the Purple-crowned Lorikeet *G. porphyrocephala*, the species with which they are most likely to be confused.

METHODS

We reviewed the South Australian Museum (SAMA) database for all references to the Little Lorikeet in South Australia (SA) and examined all extant skin and egg specimens, including those in the S.A. White Collection (SAW). Where possible we also examined all original labels and any other supporting documentation. We checked all references to the Little Lorikeet in SA published in the *South Australian Ornithologist* (SAO) and attempted to obtain all reports on this subject published elsewhere.

Abbreviations for South Australian geographical regions and terms are:

AP – Adelaide Plains
CP – Conservation Park
EP – Eyre Peninsula
KI – Kangaroo Island
MLR – Mount Lofty Ranges
MM – Murray Mallee
SE – South East
SFR – southern Flinders Ranges
YP – Yorke Peninsula

The Appendix provides a gazetteer of localities cited in this paper, and Figure 1 maps the locations of all Little Lorikeet specimens and observations quoted.

We measured eggs of Little and Purple-crowned Lorikeets in the collections of SAMA, Museum Victoria (MV), and the Australian Museum, Sydney (AM), and Ian Mason provided measurements of Little Lorikeet eggs held in the Australian National Wildlife Collection, CSIRO, Canberra (ANWC). Lengths and breadths of eggs were measured (mm) and to provide a more accurate measure of egg size, the volumes of the eggs were calculated. Little and Purple-crowned Lorikeet eggs are approximately ellipsoidal, so the formula for calculating the volume of an ellipsoid was applied: $(^4/_3 pi) \times (length/2) \times (breadth/2)^2$. The means of length, breadth and volume of eggs of the two species were compared using two-sample *t*-tests (software: Statistix 7, version 7.1).

RESULTS

1. Skin specimens

All of the 15 South Australian Little Lorikeet skins that we are aware of are held in SAMA;

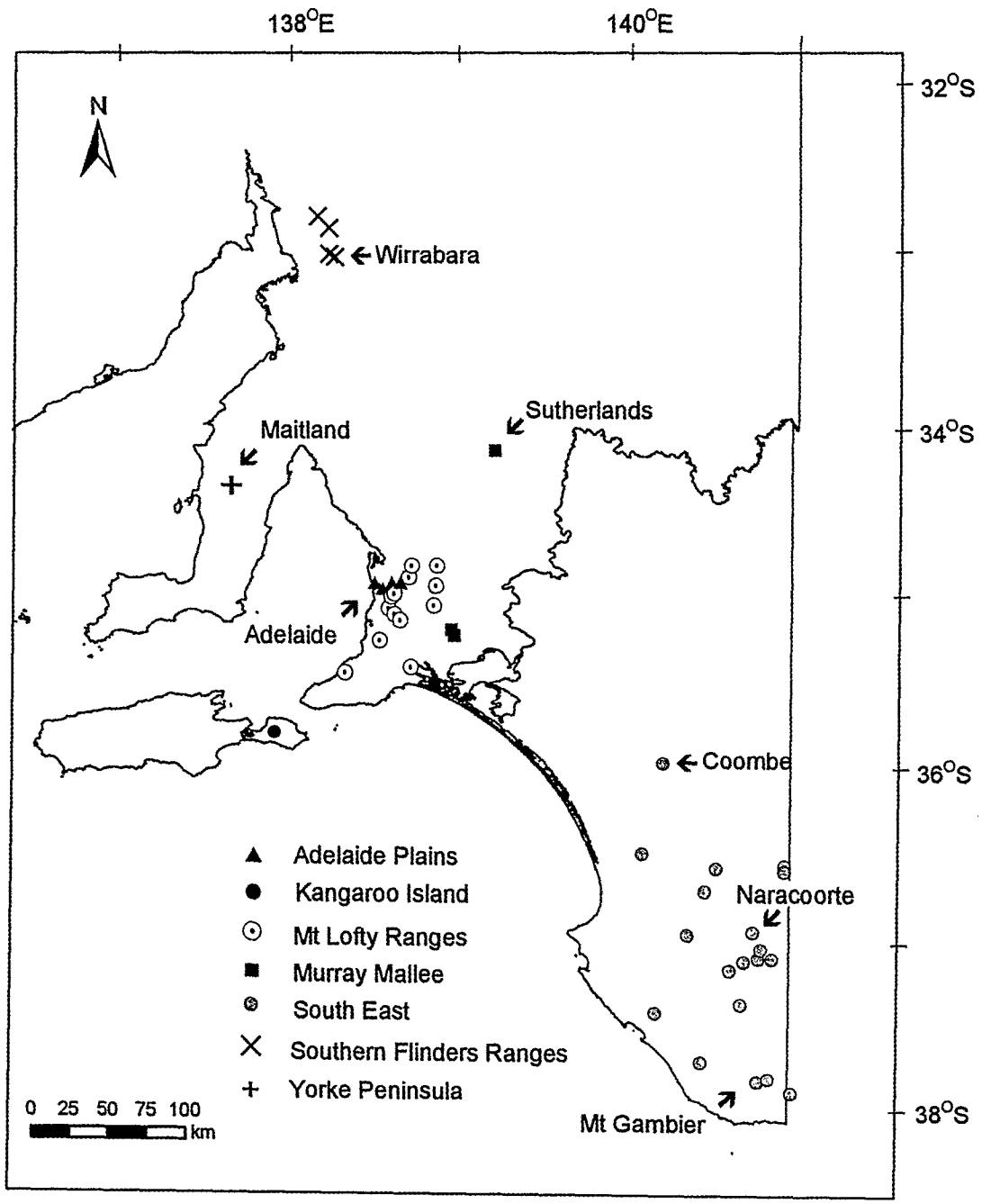

Figure 1. Map of south-eastern SA showing locations of specimens and sightings of the Little Lorikeet as given in the text. Only a few locations are named; for the remainder refer to the gazetteer (Appendix).

they are listed in Table 1 and their locations are included on the map (Figure 1).

2. Egg specimens

South Australian Little Lorikeet clutches

Details of eleven clutches were found and these are listed in Table 2; two clutches are currently missing. Two clutches had been re-identified by Shane Parker as Purple-crowned Lorikeet on the basis of their size. The locations of all clutches are included on the map (Figure 1).

Comparison of Little Lorikeet and Purple-crowned Lorikeet eggs

We measured 158 eggs from 55 Little Lorikeet clutches and 168 eggs from 58 Purple-crowned Lorikeet clutches. Details of registration numbers and collecting data are given in Tables 2, 3 and 4. Measurements of the eggs are summarised in Figures 2–4; the raw data are available from the senior author or the editor. We found that in both species shorter eggs tend to be wider while longer eggs tend to be narrower, and so the volume is a much better indicator of egg size. It should be noted that the individual volumes are not completely accurate because the eggs are not perfectly ellipsoidal, but because we measured large numbers of eggs, comparisons between the two species are considered valid.

The egg lengths of both species are compared in Figure 2, the breadths in Figure 3, and the volumes in Figure 4. Note that the figures are not a clutch by clutch comparison because they are derived from individual eggs. Each clutch comprises eggs of various sizes, but average egg sizes for each clutch were not calculated or compared between species because some clutches were incomplete, and comparisons would be meaningful only if clutches were known to be complete.

The null hypotheses that the means of egg length, breadth and volume are the same in both species were rejected ($P < 0.001$; Table 5). On average, Little Lorikeet eggs are smaller than Purple-crowned Lorikeet eggs. Nonetheless, Figures 2, 3 and 4 demonstrate that there is a broad overlap between the species in the range of each measurement, particularly volume, so that it would be impossible to identify most eggs with certainty on the basis of their size.

3. Published reports

This section details all the published accounts that we found of the Little Lorikeet in SA, plus some recent, unpublished observations, in approximately chronological order. The authors' ecological notes (if any) are included, together with notes on other lorikeet species present. The locations of these sightings are included on the map (Figure 1).

Gould (1848) commented: 'most of the [Purple-crowned Lorikeet] specimens I collected were shot during the months of June and July in the neighbourhood of Adelaide and some in the town itself. It appears to arrive in this district at the flowering season of the *Eucalypti*, in company with *Trichoglossus swainsonii* [= Rainbow Lorikeet *T. haematodus*], [*Glossopsitta*] *concinn*[a] [Musk Lorikeet] and *pusilla*, all of which may frequently be seen in the same tree at one time.' The Little Lorikeet, he noted, 'would appear to inosculate with its western ally [the Purple-crowned] in South Australia, both being equally numerous there, around, and even within the city of Adelaide.'

Clark (1889), who had lived in SA since 1850, discussed the status of parrots in the region based chiefly on observations in the eastern suburbs and foothills around Adelaide, with others from the MLR, and only occasionally further afield, e.g. KI and the SE. He had seen Rainbow Lorikeets in very large flocks, though in some years they were scarce. The Musk Lorikeet he regarded as much more common, and the Purple-crowned the commonest of all on the AP. The Little Lorikeet, he observed was 'also a very common bird here'. Clark had often observed all four species feeding in the one tree. He was also familiar with the Swift Parrot *Lathamus discolor*, known also as a Lorikeet at the time.

A.G. Campbell (1906) reported on the birds observed by members of the Australasian Ornithologists' Union expedition to KI in October 1905 and included the Little Lorikeet: 'A small party of this species was observed inland on some flowering white gums.' Morgan (1906) however was doubtful about this observation and implied that the species was probably the Purple-crowned Lorikeet, which had previously been observed on the island and which Campbell had not included in his list. Morgan also noted, '*G. pusillus* is not common anywhere in South Australia.'

Crompton (1915) published observations made at Stonyfell in the Adelaide foothills. He noted that the Rainbow Lorikeet had been absent for

Table 1. South Australian skin specimens of the Little Lorikeet held at SAMA. F = female, M = male, U = unknown.

Registration number	Sex	Location	Date (dd/mm/yy)	Collector	Remarks
B745	M	Warringa, Kangarilla (MLR)	20/4/1908	Ashby, E.	–
B19497	U	Clarendon (MLR)	20/4/1908	Ashby, E.	–
B4379	M	Blackwood (MLR)	13/4/1918	Parsons, F.E.	–
B22938	F	Blackwood (MLR)	13/4/1918	Parsons, F.E.	–
B22941	M	Blackwood (MLR)	6/4/1918	Parsons, F.E.	–
B19934	M	Sutherlands (MM)	22/5/1930	Boehm, E.F.	See Boehm (1930).
B19980	F	Sutherlands (MM)	22/5/1930	Boehm, E.F.	Ditto.
B3132	U	–	–	White, William	No locality, but W.White apparently collected mainly in South Australia. Collected prior to registered date of 20/5/1921.
B3133	U	–	–	White, William	Ditto.
B3235	U	–	–	White, William	Ditto.
B8176	U	Mt Lofty Ranges	–	–	Registered on 25/1/1927 so collected prior to that date.
Unregistered	U	?Reedbeds (AP)	–	White, Samuel	In SAW Collection. Label states 'Stuffed by Samuel White' and on next line 'Reedbeds'. Unknown if this means 'of' or 'at' Reedbeds, but specimen probably collected in South Australia. No date given, but prior to S. White's death in 1880.
Unregistered	M	Tea Tree Gully (MLR)	–/– /1890	–	In SAW Collection. Collector unknown.
Unregistered	F	Weetunga (AP)	24/5/1913	White, S.A.	In SAW Collection. Label states 'Reappeared in this district after several years absence. Party of five.'
Unregistered	M	Weetunga (AP)	24/5/1913	White, S.A.	Ditto.

Table 2. South Australian clutches of Little Lorikeet eggs.

Registration number	Number of eggs in clutch	Location	Date (dd/mm/yy)	Collector	Remarks
SAMA B3706	4	Mt Remarkable (SFR)	4/10/1894	White, A. and W.	'nest in large green limb in hole underneath tall gum on bank of creek. Saw parents go in and out several times: four eggs very much set on' [heavily incubated?].
SAMA B3707	3	Dingo Creek, Mt Remarkable (SFR)	–/11/1895	White, W.	Considered more likely to be Purple-crowned Lorikeet by S.A. Parker.
SAMA B16157	1	Wirrabara (SFR)	–	Murray, M.	No date given; Malcolm Murray collected from *c.* 1872 to 1899.
SAMA B29807	2	Wild Dog Creek Reserve (SFR)	16/8/1895	Murray, M.	–
SAMA B29808	3	Back Creek, Wirrabara district (SFR)	15/10/1895	Murray, M. and Pole, R.	–
SAMA B29809	3	Back Creek, Wirrabara district (SFR)	24/10/1898	Pole, G.	From M. Murray Collection. Considered more likely to be Purple-crowned Lorikeet by S.A. Parker.
SAMA B3705	3	Mt Barker Junction, near Mt Barker (MLR)	30/8/1884	White, A. and W., and Mellor, J.[1]	'in hollow pipe of gumtree: three eggs on rotten wood'. This clutch is missing.
Unregistered	–	Bletchley (MLR/MM)	1/8/1926	Newell, H.H.	Ex J. Thompson Collection; whereabouts of clutch unknown. Collecting data from I. Mason, ANWC, pers. comm.
AM O35308	2	Woodchester (MLR/MM)	8/8/1926	Newell, H.H. and Hassam brothers	'pink scrub gum, 20 ft, inc. [incubation] fresh, birds seen'.
Unregistered	2	Willson River (KI)	10/9/1885	White, A. & W.	'in hole of gum tree'. In SAW Collection.
Unregistered	3	Mason Swamp, Joanna (SE)	17/9/1944	Attiwill, A.R.	'15 ft off ground'. In Attiwill Collection (at Bourne's Bird Museum, via Naracoorte). Mason Swamp is a river red gum *Eucalyptus camaldulensis* swamp; J. Bourne pers. comm.

[1]William White's card of egg clutches gives the collectors as 'A, J & W White'. From his egg notebook, held at SAMA, we find that 'A' refers to Arthur, and 'J' refers to Johney. Arthur was William's son, and Johney was J.W. Mellor, William's nephew (J. Samuel-White pers. comm.).

Table 3. Egg clutches of the Little Lorikeet from Queensland, New South Wales and Victoria.

Registration number	Number of eggs in clutch	Location	Date (dd/mm/yy)	Collector
		Queensland		
SAW Collection	2	Duaringa	17/10/1892	Le Souef, D.
MV (2)	2	Coomooboolooroo Station	1881–1882	Barnard brothers
MV (6)	3	Duaringa	31/7/1907	Barnard, H.G.
MV (26)	5	Bimbi Station, Dawson River	10/9/1909	Barnard, H.G.
ANWC E00179	3	Coomooboolaroo Station	10/9/1893	? Barnard, H.G.
ANWC E09591	3	Coomooboolooroo Station	23/9/1907	Barnard, H.G.
ANWC E09592	4	Coomooboolooroo Station	31/7/1907	Barnard, H.G.
ANWC E12472	4	Hermitage, 8 km E of Warwick	26/9/1959	Seton, D.H.C.
ANWC E12473	3	Durikai State Forest, 40 km W of Warwick	5/11/1981	Seton, D.H.C.
AM O18796 to AM O18805	10 single eggs	Duaringa, Dawson River	–	Anon.
AM O25087	3	Coomooboolaroo Station, Duaringa	1/9/1893	Barnard, H.G.
AM O48286	5	Coen	4/5/1923	McLennan, W.R.
		New South Wales		
SAMA B9946	3	Copmanhurst district, Clarence River	7/8/1896	Savidge, G.
SAMA B14477	4	Cobborah Estate, Cobbora	14/9/1917	Austin, T.P.
SAMA B26146	4	Mole River, Gibraltar Station, Tenterfield	24/8/1957	Goddard, M.T.
MV (7)	4	Cobbora	29/8/1915	Austin, T.P.
MV (17)	3	Cobbora	2/9/1917	Austin, T.P.
MV (25)	5	Kilwinning, Cobbora	8/10/1912	Cox, B.C.
ANWC E02074	5	Narran Station near Dubbo	11/10/1917	Bell, A.W.
ANWC E03685	3	Mole River, W of Tenterfield	31/8/1957	Goddard, M.T.
ANWC E08783	4	Wambangalang Station, Dubbo	7/11/1898	Lane, E.H.
ANWC E13734	4	Blackhill, E of Kurri Kurri	30/9/1995	Zenoff, A.
ANWC E13735	4	Blackhill, E of Kurri Kurri	7/9/1995	Zenoff, A.
AM O32477	1	Rooty Hill, Sydney	–	Etheridge
AM O34369	3	Wambangalang	9/10/1894	Lane, E.H.
AM O50884	5	Cobborah Station, Cobbora	6/8/1909	Austin, T.P.
AM O56384	1	Armidale	–/–/1882	Anon.
AM O63894	5	Copmanhurst	–/9/1901	Savidge, G.
AM O63895	4	Willow Tree Rd, near Merriwa	14/8/1960	Hyem, E.L.
AM O64060	4	Copmanhurst	6/8/1915	Savidge, G.
AM O69743	3	Cobborah Station, Cobbora	12/8/1907	Austin, T.P.
		Victoria		
SAMA B2778	3	Nhill	18/11/1903	Keartland, G.A.
MV (12)	7 of 3*	Greendale, NE of Ballan	6/10/1944	Harvey, L.
MV (13)	*	Greendale, NE of Ballan	6/10/1958	Harvey, L.
MV (14)	*	Cardigan, W of Ballarat	16/10/1931	Harvey, L.
ANWC E09589	5	Moranghurk Station near Lethbridge	7/10/1900	Molesworth, J.M.
ANWC E09590	3	Wersley	1/10/1898	Hill, G.F.
AM O48556	4	Hamilton	20/12/1898	Niddrie

*7 eggs of 3 clutches (MV 12, 13 and 14) mixed up.

Table 4. Egg clutches of the Purple-crowned Lorikeet.

Registration number	Number of eggs in clutch	Location	Date (dd/mm/yy)	Collector
		South Australia		
SAMA B3703	3	Flinders Ranges	27/11/1894	White, A. and W.
SAMA B3704	3	Flinders Ranges	27/9/1894	White, A. and W.
SAMA B9945	3	Flinders Ranges	–/11/1894	White, W.
SAMA B14475	3	Yantanabie (EP)	22/8/1923	McGilp, J.N.
SAMA B14476	4	One Tree Hill (MLR)	21/8/1930	McGilp, L.K. and Watson, W.
SAMA B16156	4	River Finniss (MLR)	20/8/1898	Morgan, A.M.
SAMA B17394	3	Happy Valley (MLR)	6/11/1924	Morgan, A.M.
SAMA B18370	3	Rufa Park, N of Kimba (EP)	26/9/1925	McGilp, J.N.
SAMA B18885	3	32 miles SW of Iron Knob (EP)	15/9/1925	Parsons, F.E.
SAMA B29793	4	Bayleys Creek, Wirrabara (SFR)	28/6/1895	Murray, M.
SAMA B29794	2	Wirrabara Creek (SFR)	18/6/1895	Murray, M.
SAMA B29795	3	Wirrabara Creek (SFR)	–	Murray, M.
SAMA B29796	3	Borgas Paddock, Wirrabara (SFR)	19/6/1895	Murray, M.
SAMA B29798	3	Polls Paddock, Wirrabara (SFR)	–/6/1898	Clifton, J.
SAMA B29799	4	Wirrabara (SFR)	28/6/1895	Murray, M.
SAMA B29800	2	Stone Hut (SFR)	20/5/1895	Murray, M.
SAMA B29801	2	Stone Hut (SFR)	3/7/1895	Murray, M.
SAMA B29802	3	Stone Hut (SFR)	20/7/1895	Murray, M.
SAMA B29803	2	Stone Hut (SFR)	20/7/1895	Murray, M.
SAMA B29804	2	Stone Hut (SFR)	20/7/1895	Murray, M.
SAMA B29805	2	Stone Hut (SFR)	20/7/1895	Murray, M.
SAMA B29806	2	Stone Hut (SFR)	20/7/1895	Murray, M.
SAMA B32663	2	Port Lincoln (EP)	–	Crompton, R.
SAMA B33293	2	Tea Tree Gully (MLR)	12/10/1908	Hall, F.T.
SAMA B50271	3	Buckleboo (EP)	–/8/1947	Mudge, A.
SAW Collection	2	Pellaring Scrub (MM)	–/11/1905	Angove, E.
SAW Collection	4	Flinders Ranges	-/09/1895	? White, W.
SAW Collection	2	Flinders Ranges	–/8&9/1894	White, W.
SAW Collection	3	Flinders Ranges	1/10/1915	White, S.A.
SAW Collection	3	between Lakes Wangary and Greenly (EP)	30/8/1911	White, S.A.
SAW Collection	3	between Lakes Wangary and Greenly (EP)	30/8/1911	White, S.A.
MV (1)	3	Dingo Creek, Mt Remarkable (SFR)	27/9/1894	White, W.
MV (4)	3	Hartley (MLR/MM)	25/8/1926	Newell, H.H.
MV (19)	3	Balah Station (MM)	2/9/1908	Anon.
AM O25093	2	Mount Lofty	–/11/1889	White, W.
AM O25683	1 (of 2)	Mount Lofty Ranges	–/9/1886	White, W.
AM O35307	3	Bletchley (MLR/MM)	24/8/1926	Newell, H.H.
AM O35668	3	Woodchester (MLR/MM)	2/9/1926	Newell, H.H.
AM O48340	2	Lake Alexandrina (MM)	25/8/1896	Finnis, H.
AM O48555	3	1 mile NW of Kimba (EP)	7/8/1922	Collins, H.
AM O52824	3	Mount Remarkable (SFR)	29/10/1897	White, W.
AM O63953	3	Mount Remarkable (SFR)	–/9/1895	White, W.
		New South Wales		
SAMA B2777	4	Murrumbidgee	12/11/1898	Keartland, G.A.
		Victoria		
MV (3)	3	Roseneath, Casterton	16/8/1921	Simson, C.E.
MV (9)	6 of 3*	Ararat	12/8/1909	Dangri, N.
MV (10)	*	*c.* 15 miles W of Ballarat	17/9/1932	Harvey, L.
MV (11)	*	Beremboke, 14 miles S of Ballan	19/9/1955	Harvey, L.
MV (16)	3	Edenhope	14/9/1920	Collins, H.
MV (18)	4	Kow Plain	26/9/1912	Anon.
MV (24)	4	Kow Plains	29/8/1912	Chandler, R.C. and L.G.
AM O36221	3	Kow Plains	9/9/1912	Chandler, L.G. and R.C.
AM O63893	3	2.5 miles SE of Kow Railway Station	16/10/1901	Chandler, A.E.
		Western Australia		
SAMA B41968	4	Gnowangerup	11/9/1938	Watts, E.
SAMA B41969	3	S of Borden, near Stirling Range	–/9/1943	Watts, E.G.
MV (5)	4	South Borden	29/9/1943	Watts, E.G.
MV (23)	4	Burrabidgy Station, Moora	31/8/1909	Sandland, P.T.
AM O50883	4	near Moora	10/8/1909	Sandland, P.T.
AM O63936	3	Boyup Brook	20/10/1963	Bush, T.E.

*6 eggs of 3 clutches (MV 9, 10 and 11) mixed up

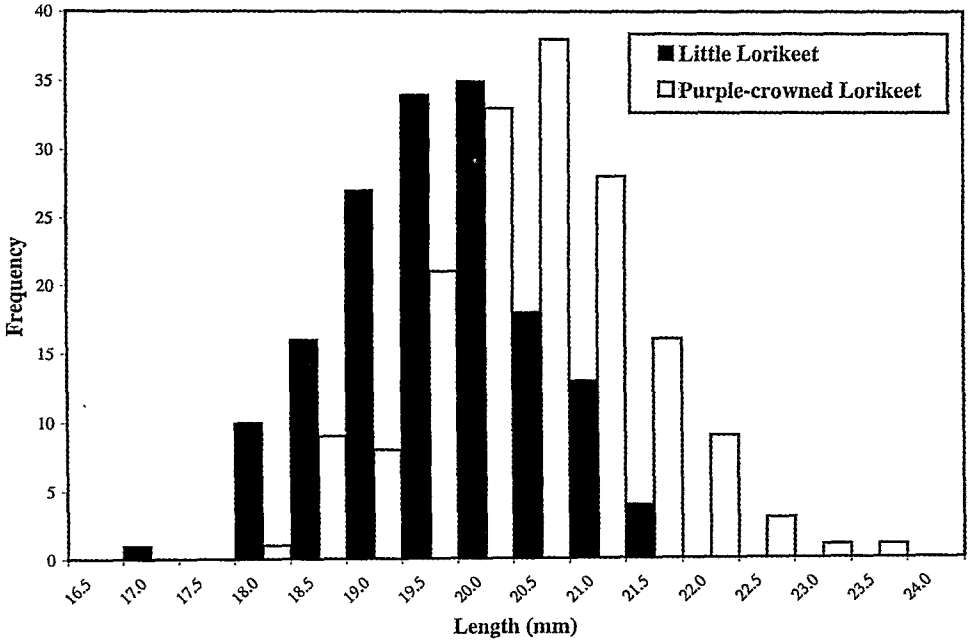

Figure 2. Frequency of occurrence of lengths of Little Lorikeet and Purple-crowned Lorikeet eggs.

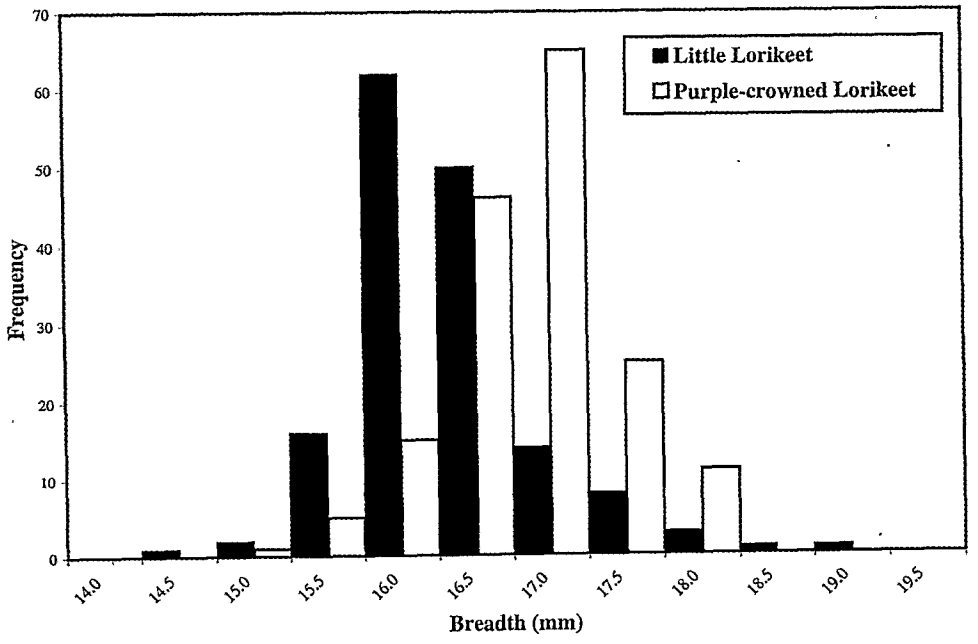

Figure 3. Frequency of occurrence of breadths of Little Lorikeet and Purple-crowned Lorikeet eggs.

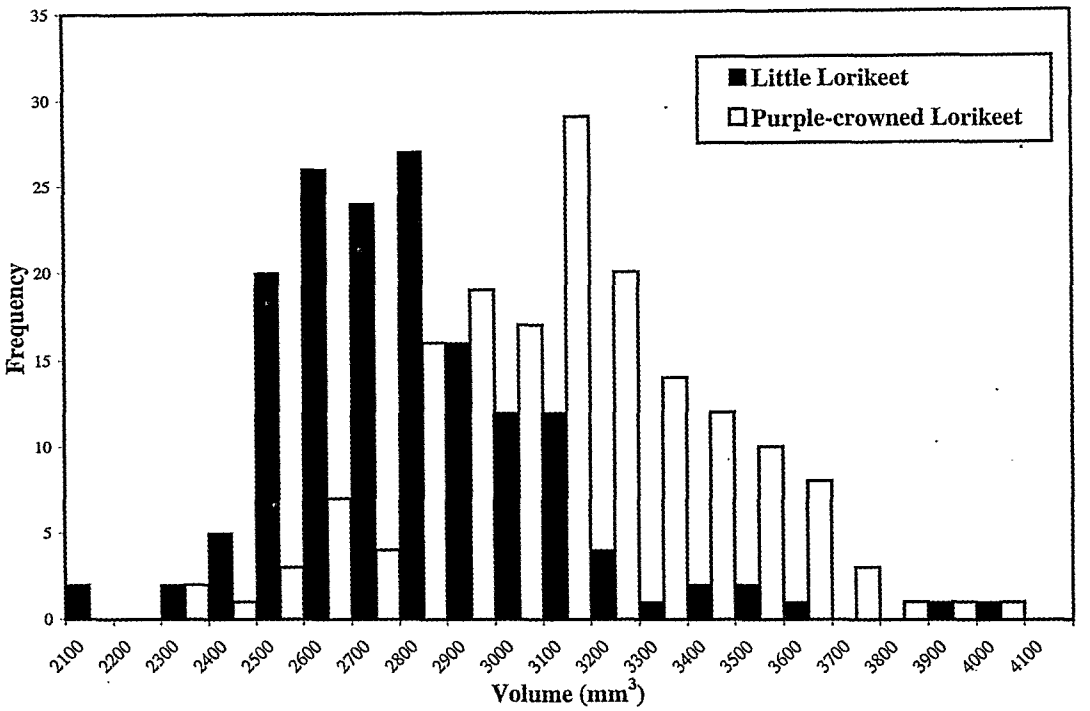

Figure 4. Frequency of occurrence of volumes of Little Lorikeet and Purple-crowned Lorikeet eggs.

Table 5. Means and standard errors for lengths, breadths and volumes of Little Lorikeet and Purple-crowned Lorikeet eggs, using two-sample *t*-tests.

	n	Length (mm)	Breadth (mm)	Volume (mm^3)
Little	158	19.8 ±0.19	16.5 ±0.1	2836 ±23
Purple-crowned	168	20.6 ±0.1	17.1 ±0.1	3156 ±24
Significance level		*0.001*	*0.001*	*0.001*

about thirty years since autumn 1878 when they 'came in vast numbers'. Then they had been seen in pairs in 'the last few years' and in 'considerable numbers...just at present'. The Musk Lorikeet was considered a 'migrating bird; very common at times'. The Purple-crowned was described as 'extremely common when the gum trees are in flower', and the Little Lorikeet as 'rarer than the last species, although they come along with them, in fair numbers to eat the gum tree honey'.

The SAOA (1915) lists the Musk, Little and Purple-crowned Lorikeets for Adelaide and its Parklands, but does not include either the Rainbow Lorikeet or Adelaide Rosella *Platycercus elegans*, and includes the Red-rumped Parrot *Psephotus haematonotus* as a rare visitor. North (1912) referred to correspondence with Edwin Ashby of Blackwood and Dr W.A. Angove [W.T. Angove] of Tea Tree Gully (MLR). The former reported the Little Lorikeet to be decidedly scarce in the hills near Adelaide at the time, 'but in 1908 they were everywhere'. Dr Angove had suggested the species was present 'in very small numbers most of the year'.

White (1919) wrote that the Rainbow and the Musk Lorikeets visited the Reedbeds (Fulham, AP) at intervals but he had not seen them 'in great numbers for years now'. In contrast the Purple-crowned Lorikeet 'visits us in great numbers when the gums are in flower, and make the air resound with their shrill voices'. In reference to the Little Lorikeet he noted: 'a few of these birds visit us in company with the preceding species [Purple-crowned Lorikeet] as a rule, but are never numerous'.

John Sutton observed Little Lorikeets in the Netherby District (AP) in July 1919, and during a walk from XL Quarry to Belair National Park (MLR) on 3 August 1919 (from Sutton's unpublished notebooks, held at SAMA; B. Cale pers. comm.).

Edwin Ashby (1914, 1923) and Keith Ashby (1921) reported Little Lorikeets and the other three Lorikeet species at Blackwood (MLR), suggesting their regular occurrence there at least for the months of March to May. Ashby (1914) remarked, 'No doubt the heavy blooming of the Peppermint (*Eucalyptus odorata*)[1] is the chief reason'.

[1]Now considered to be grey box *E. microcarpa*, which is the common eucalypt in the foothills that flowers in autumn—Ed.

Newell (1927) listed all four lorikeet species on Hindmarsh Island (MM) as 'plentiful when the gums are blossoming'.

Boehm (1930) reported two birds in white mallee *Eucalyptus gracilis* at Sutherlands (MM) on 22 May 1930 (*v.s.*).

Weidenbach (1930) reported 'very many' Little Lorikeets at Happy Valley (MLR) on 28 May 1930.

Harvey (1933) wrote that at Coombe, upper SE/MM, early May 1933, 'gum trees are in full blossom now' with Musk and Purple-crowned Lorikeets present and 'five smaller ones, most probably the Little Lorikeet'.

Hood (1934) described the Little Lorikeet as a 'rare visitor to this district [Bool Lagoon, SE], generally arriving when the eucalypts are blossoming'.

Brown (1937) recorded three Little Lorikeets at Gumeracha (MLR) in mid-April 1936.

Symon (1940) spent much of the period between January 1937 and March 1939 bird watching on the Fleurieu Peninsula (MLR) west of Yankalilla, Normanville and 'The Encounter Bay District'. He located nests of the Rainbow, Musk and Purple-crowned Lorikeets. Of the Little Lorikeet he noted 'numerous flocks throughout the 'gum country' in the Hundred of Yankalilla during 1938'. During 1944 and 1945 he lived at Willunga (MLR), where he listed all four Lorikeet species as summer visitors (Symon 1946).

Souter (1942) saw Little Lorikeets at Maitland (YP) 'for the first time' during 1939, having observed birds in the region since March 1922. They were present for three days 'feeding on the blossom of the flowering eucalypts in our garden'.

There have been relatively few reports since that time. Bird Notes (SAOA 1951) recorded the observations of C. Rix, Woodside District, 9–26 June 1950 and H. Jarman, Tea Tree Gully, 18 June 1950 (both MLR), while Glover (1954) noted the Little Lorikeet ('The least numerous of the four species') at Naracoorte (SE) 16–24 January 1954. Glover (1965) cited a record of four birds from Cave Range (SE) on 27 September 1964, and a reference to their being uncommon in the Tantanoola area.

Attiwill's (1972) breeding observations of over thirty years in the Naracoorte District included the Little Lorikeet with the dates 17 September to 17 November (earliest and latest dates on which he recorded nests containing eggs) and additional comments 'Nomadic. Not plentiful at

any time. Now rare.' Notes accompanying his egg collection include details of a clutch of three eggs (not collected) at Mason Swamp, Joanna, 17 November 1946, and birds breeding at Stony Point, Naracoorte Caves area, 2 November 1959 (J. Bourne pers. comm.).

Rix (1975a) reported that in Scott CP (MLR) on 6 November 1973 all four species of lorikeets were feeding among the blossoms of South Australian blue gum *Eucalyptus leucoxylon* (pink form) and scarlet bottlebrush *Callistemon macropunctatus* [= *C. rugulosus*]. There were seven or eight Little Lorikeets, 50 or more Purple-crowned and about a dozen of each of the other two species. He also observed six Little Lorikeets perching in a coral gum *Eucalyptus torquata* and feeding on ripe plums at Glandore (AP), 2–3 February 1974; the other two *Glossopsitta* species were also present at the time (Rix 1975b).

Almost all records since then have been from the SE. Ragless (1978) observed two Little Lorikeets near Struan on 21 November 1975, and M. Brown observed two Little Lorikeets at Thornlea near Beachport on 2 March 1976 (SAOA 1976).

McIntyre (1983) reported Little Lorikeets at 'The Gap', 35 km N of Naracoorte on 7–8 January 1983, the species being present with and more numerous than Rainbow, Musk and Purple-crowned Lorikeets. They were first noted in a river red gum *Eucalyptus camaldulensis*, and later were seen feeding in flowering South Australian blue gums.

Reid, Barritt and Houston (1985) listed the Little Lorikeet as a vagrant in gum woodland in the Bangham area, while Possingham and Possingham (1997) considered the species was probably locally extinct in the upper SE, i.e. north of Bordertown and Keith.

Carpenter *et al.* (2004) listed a single report of the species from the MLR (at Blackwood, P. Filsell, 11–22 October 1982, feeding in a lemon-scented gum *Eucalyptus citriodora*) and ten reports from the SE in the period from 1982–1999 (including McIntyre's). These included the months of January, April, May, June, September, October and December, and the localities of Bangham, Lucindale and Bool Lagoon, and Mary Seymour, Bangham and Talapar CPs, and the most northerly and westerly at Water Valley Station. For the Talapar CP record (19 April 1987), several pairs were seen feeding in South Australian blue gum blossoms, with many Musk and Purple-crowned Lorikeets. For one of the Bangham CP records (S. and D. Harper, 4 January 1992) five or more individuals were feeding in flowering gums with other lorikeets. For the Bool Lagoon record (J. and P. Bourne, 26 May 1997) six birds were feeding in flowering gums with Musk and Rainbow Lorikeets.

Rogers (2002) included one Little Lorikeet at Bangham CP (1 January 2000) and one heard at Padthaway CP (SE, C. Houston, 25 September 2000). The Bird Reports for 2001 and 2002 (Rogers 2003, 2004) list no records. The only other SAOA record (SAOA 2004) is of five birds at Hawkins/Wireless Roads, Mount Gambier (SE, R. Green, 5 April 2004). The Birds South East database has additional records (B. Haywood and R. Green pers. comms): 4–10 birds at Rennick State Forest (just over the border in Victoria, J.F. Berggy, 27 April 2002); two birds at Worrolong (J.F. Berggy, 20 April 2003); and two birds at McDonald Park School oval, Mount Gambier (R. Green, 23 June 2003; many eucalypts (probably planted) in the surrounding area were flowering).

Both Atlases of Australian Birds include a few records of the Little Lorikeet from the SE, and the 1984 Atlas mentions a breeding record at Naracoorte in 1951 (Blakers, Davies and Reilly 1984; Barrett *et al.* 2003). The 2003 Atlas includes a record from the Adelaide grid square of four to six birds adjacent to Morialta CP (J. Thorn, 20 January 2000 and several previous occasions, feeding in apple trees alongside Musk and Rainbow Lorikeets). An Unusual Record Report Form was filled out for this record but has little description of the birds (A. Silcocks pers. comm.); because of this the validity of the record is uncertain.

DISCUSSION

Recent authorities consistently indicate that the Little Lorikeet is an uncommon species in SA. Terrill and Rix (1950) described it as 'rarely met' but commented that it 'may not be as rare as the few records would indicate, as it is a difficult bird to identify when feeding in the tops of tall eucalypts and may easily be mistaken for...*G. porphyrocephala*'. Condon (1968) felt it to be 'somewhat rare'. Forshaw and Cooper (1980) cited the opinion of the late Shane Parker, viz. 'a rare breeding bird in the south-east and...record-

ed north to the Mt Lofty Ranges as a rare non-breeding visitor'. Higgins (1999) described the SA distribution as 'mainly restricted to the SE' but historically rarely further west. Blakers *et al.* (1984) and Higgins (1999) both stated that visits of the species to the MLR area historically were confined to the autumn–winter season. Parker and Reid (1983) listed the Little Lorikeet in the SE as a breeding species occurring in spring–summer, and mainly in *Eucalyptus camaldulensis* woodland. They stated that it has declined drastically through clearing [of native vegetation], and is now virtually extinct in the region.

There can be no doubt that the Little Lorikeet is now exceedingly rare in SA, other than in the SE, where it is nonetheless rare. From the reports of Gould (1848), Clark (1889), Crompton (1915), SAOA (1915) and White (1919), however, we conclude that the Little Lorikeet was in fact common in the MLR and AP in colonial times, i.e. at least until the close of the 19th century. Thereafter it appears to have been less prevalent in this part of the state though with relatively frequent observations until the 1940s. Since then any sighting in the state has been considered noteworthy, although reports from the SE continue to the present. It is possible that breeding still occurs in the SE in view of the species' presence in almost all months of the year, but this has not been confirmed since the observations of Attiwill (1972) and notes in his egg collection, his last nesting observation having been in 1959. Bryan Haywood (pers. comm.) believes that breeding is still possible in the large gum woodlands in the mid- to upper SE, although as a breeding population the species is very threatened.

The presence of the species on KI is arguable, but given that William White collected a clutch of eggs there (see below for discussion of authenticity of his records) and that Campbell (who reported the only sighting) ought to have been familiar with Little and Purple-crowned Lorikeets as he lived within the range of both species (in Melbourne), we believe that the Little Lorikeet should be considered as at least historically occurring on the island, even if only occasionally. The fact that Souter (1942) made the first report for Yorke Peninsula, after 17 years of observing in the area, indicates that the Little Lorikeet was capable of moving beyond its more usual distribution.

Our summary of records indicates that the Little Lorikeet was by no means confined to the autumn–winter season in the AP–MLR–SFR region. The observations include three during spring and three during summer, and five of the egg clutches were collected during spring. This suggests that the Little Lorikeet could have been resident in the AP–MLR–SFR region. The repeated observations that the species was present when *Eucalyptus* spp. were flowering suggest that the Little Lorikeet was locally nomadic, with irregular increases in local abundance, as indeed it is in much of its range today (Higgins 1999). There may have been some seasonality to its movements, as the fewest records are from summer, but there is no evidence to support the theory that it was a strict autumn–winter visitor with a regular migration to and from the AP–MLR–SFR region. Our data, however, are insufficient to determine the extent to which the species was resident, nomadic or seasonal. The belief that the species was an autumn–winter visitor may be an artefact of reported observations (there are a few more reports from autumn than from other seasons) and of collecting, in that emphasis tends to be placed on the skins in bird collections, and all the dated skins in SAMA are from autumn (eight) and winter (one). There is also no evidence to support Parker and Reid's (1983) opinion that the Little Lorikeet occurred over spring–summer in the SE, since the observations in the SE are distributed almost equally between spring–summer and autumn–winter.

One of the main objects of this review has been consideration of the Little Lorikeet as a breeding species in SA. This has been acknowledged already for the SE (e.g. by Forshaw and Cooper 1980; and Higgins 1999) following Attiwill (1972) though his records are far from detailed. We now have documentary evidence for breeding by the Little Lorikeet in other parts of the state, namely from Mt Barker (MLR), Woodchester and Bletchley (MM/MLR), Mt Remarkable and Wirrabara (SFR) and KI. The period of these egg collections is limited, mostly from 1884 to 1898 with two in 1926 (Table 2), i.e. mostly during the time when the species was considered reasonably common in SA. We cannot discount erroneous identification of the breeding birds and it is evident that this possibility was considered by Shane Parker who had begun to review Little Lorikeet records for a future (but never published) part of *An Annotated Checklist of the Birds of South*

Australia (manuscript notes retained in SAMA; see also McIntyre 1983). In raising the question of identity, Parker had provisionally revised the species attribution of a number of clutches, i.e. from *G. pusilla* to *G. porphyrocephala* and *vice versa* on the basis of their dimensions. We found that while the average length, breadth and volume of Little Lorikeet eggs are smaller than those of Purple-crowned Lorikeet eggs, there is so much overlap in all three measurements that no clutch can be assigned with complete confidence to either species. Two Little Lorikeet eggs stand out as being particularly small (Figure 4), but these belong to two separate clutches (B3706, a clutch of four eggs, and ANWCE02074, a clutch of five eggs), in each of which the remaining eggs are well within the size range of both species. It is possible that these were the last 'runt' eggs laid in their clutches. Two other Little Lorikeet eggs are particularly large (Figure 4), both single eggs, but these were collected from the Sydney region, New South Wales (AM.O32477) and from near Rockhampton, Queensland (AM.O18796), and are thus from outside the range of the Purple-crowned Lorikeet.

We therefore find it impossible to distinguish the eggs of these two species by size alone and have allowed the original identifications to stand. We justify this decision by considering evidence indicating that the two primary collectors, William White and Malcolm Murray, were well acquainted with both species. (Details of their clutches that we examined are given in Tables 2 and 4.)

William White was a brother of Samuel White and uncle of Captain S.A. White. His collections of eggs and skins are now held mainly in the SAMA, with a few egg clutches held elsewhere. At least three Little Lorikeet skins in SAMA are his (*v.s.*), as well as three Purple-crowned Lorikeet skins. There is also evidence that he observed the breeding of both species in the same locality: he took a clutch of the Little Lorikeet at Mt Barker on 30 August 1884 (B3705), and collected two eggs of the Purple-crowned Lorikeet at nearby Blakiston in September 1886 (B3702, missing from collection). He also found a nest of the Purple-crowned Lorikeet with one egg and three newly hatched young at Blakiston on 18 September 1886 (this egg was never registered and its location is unknown). Campbell (1900) reported this in describing his first observations of the eggs of the latter species and noted a set of three 'taken by the same gentleman' at Dingo Creek, Mt Remarkable on 27 September 1894, as well as a clutch of four sent to him by White, though collected by M. Murray near Stone Hut on 25 May 1895. Corresponding to this evidently active period of collecting by both men are the clutches of Little Lorikeet eggs collected by White at Mt Remarkable on 4 October 1894 (B3706) and November 1895 (B3707) and those collected by Murray from near Mt Remarkable and Wirrabara in August (B29807) and October (B29808) 1895. It is also of interest that the Purple-crowned Lorikeet eggs from Stone Hut sent to Campbell are matched by another clutch of this species from Stone Hut taken only five days earlier, 20 May 1895 (B29800). This last, of two eggs only, was provisionally re-assigned by Parker to the Little Lorikeet. It seems to us unlikely that these two actively collaborating collectors would have erred in their identification of parent birds when taking clutches of eggs and providing the kind of documentation expected by authoritative ornithologists such as Samuel White and A.J. Campbell.

The third collector, Harry Newell of Hindmarsh Island, also collected clutches of both lorikeet species and appears to have been a competent collector, and so we find no reason to doubt that he identified his lorikeet eggs correctly. Furthermore, he collected both species at the same locations: Woodchester and Bletchley (see Tables 2 and 4, and there is another Purple-crowned Lorikeet clutch that he collected at Woodchester on 8 August 1926, in the B. Crisp Collection; I. Mason pers. comm.). Of interest is that these locations are on the edge of the MM, a habitat well known for the Purple-crowned Lorikeet but not so much for the Little Lorikeet, which is mainly found in dry, open sclerophyll forests and woodlands (Higgins 1999).

The SA clutches of Little Lorikeet were laid from August to November, thus mirroring exactly the peak breeding season of the species in eastern Australia, judging by the months given in Tables 2 and 3. This reinforces the notion that the Adelaide–MLR–SFR region was an established part of the species' normal range.

Reasons for the drastic decline of the Little Lorikeet in SA will never be fully understood, since the habits and ecology of the species were not studied before it disappeared. However a few factors seem likely to be key influences. Most significant is probably habitat clearance, as indicated by Parker and Reid (1983). Massive

removal of eucalypt woodlands over most of its former range would have drastically reduced food and nesting resources. The Little Lorikeet feeds mainly on the pollen and nectar of eucalypts and melaleucas (Higgins 1999), as confirmed by the records above, which indicate a heavy reliance on flowering eucalypts. Little Lorikeets can use exotic food sources but appear to do so only to a limited extent (Higgins 1999); the only such records we found were Rix's (1975b) observation of them feeding on plums, and the most recent observation (if valid) in the AP (Barrett *et al.* 2003) of birds feeding in apple trees. The species is therefore likely to find gardens and agricultural areas unsuitable for prolonged residence.

The relative abundance of other lorikeet species should also be considered. Records for the 19th and early 20th centuries indicate that the Purple-crowned Lorikeet was generally considered the most abundant species in the AP–MLR area, with the Musk and Little Lorikeets probably in similar numbers, and the Rainbow Lorikeet generally much less common. In recent years the species balance has altered dramatically, with the Purple-crowned Lorikeet now occurring in relatively low numbers, and the Rainbow Lorikeet being abundant and in some areas outnumbering the Musk Lorikeet (PH and ABB pers. obs.). Relative numbers of the Musk Lorikeet are difficult to assess, but the species may be as common as it was in the late 19th century, or it may be more abundant. The Rainbow Lorikeet is a very adaptable species, able to occupy a wide variety of habitats and to use exotic food sources (Higgins 1999). Clearly the Rainbow Lorikeet has benefited in the Adelaide region from the planting of orchards, parks and gardens, eucalypts from interstate such as the lemon-scented gum, and other exotic species. Clearing of eucalypt woodland for farmland in other parts of SA may however have reduced their numbers, as noticed by Attiwill (1972). The Musk Lorikeet also occurs in a wide variety of habitats including human-made environments (Higgins 1999) although perhaps not quite to the extent of the Rainbow Lorikeet. The abundance of these two species may be a factor in the decline of the two smaller species as they compete for dwindling resources in native habitats. The Purple-crowned Lorikeet can make extensive use of mallee habitats, thus aiding its continued existence in wetter areas, but the Little Lorikeet cannot.

We might speculate that the appearance of the Little Lorikeet in drier, more marginal areas of SA in the early 20th century perhaps corresponded with the clearing of native vegetation and declining resources in their preferred habitat. The examples quoted above are the eggs collected by Newell at Woodchester and Bletchley in 1926, the skins collected by Boehm at Sutherlands in 1930 (his first observation of the species in the area), and the first record for YP in 1939 (Souter 1942).

Competition for nesting hollows may also have been a factor in the decline of the Little Lorikeet, firstly because of clearance and the destruction of many hollows and secondly because of increased competition for hollows with other lorikeets, and possibly also from the introduced Common Starling *Sturnus vulgaris* and Honey Bee *Apis mellifera*. Little Lorikeets have been observed to use very small hollows that are smaller than Rainbow or Musk Lorikeets use (Beruldsen 2003; J. Bourne pers. comm). The Purple-crowned Lorikeet also usually uses smaller hollows than the Rainbow and Musk Lorikeets (Beruldsen 2003), so this is the lorikeet species most likely to compete with Little Lorikeets for nest hollows.

We conclude that the Little Lorikeet was a moderately common breeding species in SA before the end of the 19th century, its distribution extending from the SE to the MLR, AP and SFR, and at least occasionally KI. Since that time its status in SA has declined, so that it is a very rare visitor or almost extinct in all of its former range except for the SE. Breeding in SA has not been documented for 46 years. The listing of the Little Lorikeet as Vulnerable in the proposed schedules of the *National Parks and Wildlife Act* (1972) should possibly be reassessed and a status of Endangered considered. In the future it seems unlikely that the Little Lorikeet will be seen as anything other than a vagrant north and west of the SE, without massive restoration of *Eucalyptus* woodland habitats.

Future studies on the Little Lorikeet could include a DNA analysis of the species across its entire range. Comparison of old specimens from the AP–MLR–SFR region with specimens from the SE and from eastern states may shed light on whether the AP–MLR–SFR population was resident and genetically distinct from eastern populations, or whether the species was nomadic across its entire range. This in turn would help us interpret the significance of the loss of the Little Lorikeet from much of its South Australian

range, whether it is simply a contraction of its range or the extinction of a population.

The decline of the Little Lorikeet in SA has implications for its status in eastern Australia. For several other species a decline in or effective extinction of their population in south-eastern SA has been associated with their decline Australia-wide. Examples are the Ground Parrot *Pezoporus wallicus wallicus*, Swift Parrot *Lathamus discolor*, Regent Honeyeater *Xanthomyza phrygia*, and Grey-crowned Babbler *Pomatostomus temporalis temporalis* (Robinson and Traill 1996; Garnett and Crowley 2000). For some species South Australian declines may even precede and therefore be predictive of their decline elsewhere (Julian Reid pers. comm.) and the Little Lorikeet may be one such species. Already Richard Allen (pers. comm.) has data that quantify a decline in Little Lorikeet numbers at a site on the south-west slopes of the Great Dividing Range in New South Wales, and he suspects that the species has also declined on the New South Wales south coast. We therefore recommend that an Australia-wide review of the Little Lorikeet's current population trends should be conducted.

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REFERENCES

Ashby, E. 1914. Current observations. *South Australian Ornithologist*, 1 (3), 15.

Ashby, E. 1923. Bird notes. *South Australian Ornithologist*, 7 (3), 82–83.

Ashby, K. 1921. Monthly proceedings. *South Australian Ornithologist*, 6 (3), 54.

Attiwill, A.R. 1972. Birds breeding in Naracoorte district, 1941–1971. *South Australian Ornithologist*, 26 (3), 59–64.

Barrett, G., Silcocks, A., Barry, S., Cunningham, R. and Poulter, R. 2003. *The new atlas of Australian birds*. RAOU, Melbourne.

Blakers, M., Davies, S.J.J.F. and Reilly, P.N. 1984. *The atlas of Australian birds*. RAOU and Melbourne University Press, Melbourne.

Beruldsen, G. 2003. *Australian birds: their nests and eggs*. G. Beruldsen, Brisbane.

Boehm, E.F. 1930. Bird notes. *South Australian Ornithologist*, 10 (7), 232–233.

Brown, R.F. 1937. A trip to Mannum and other notes. *South Australian Ornithologist*, 14 (1), 24–27.

Campbell, A.G. 1906. Report on the birds of Kangaroo Island: a comparison with mainland forms. *Emu*, 5, 139–145.

Campbell, A.J. 1900. *Nests and eggs of Australian birds*. Pawson and Brailsford, Sheffield.

Carpenter, G., Black, A., Harper, D. and Horton, P. 2003. Bird report, 1982–1999. *South Australian Ornithologist*, 34 (4), 93–151.

Clark, M.S. 1889. Our native parrots. *Proceedings of the Field Naturalists Section of the Royal Society of South Australia for 1988–9*, 28–46.

Condon, H.T. 1968. *A handlist of the birds of South Australia*. South Australian Ornithological Association, Adelaide.

Crompton, R. 1915. Birds observed at Stonyfell, S.A. *South Australian Ornithologist*, 2 (2), 36–43.

Forshaw, J.M. and Cooper, W.J. 1980. *Australian parrots*. Second edition. Lansdowne, Melbourne.

Garnett, S.T. and Crowley, G.M. 2000. *The action plan for Australian birds 2000*. Environment Australia, Canberra.

Glover, B. 1954. Bird observations in the South-East and elsewhere. *South Australian Ornithologist*, 21 (2–3), 31–32.

Glover, B. 1965. Bird report, 1964. *South Australian Ornithologist*, 24 (4), 55–68.

Gould, J. 1848. *The birds of Australia*. Volume 5. London.

Harvey, W.J. 1933. Birds of the Coombe district. *South Australian Ornithologist*, 12 (3), 98–99.

Higgins, P.J. (ed). 1999. *Handbook of Australian, New Zealand and Antarctic birds. Volume 4, parrots to Dollarbird*. Oxford University Press, Melbourne.

Hood, J.B. 1934. The birds in the Bool Lagoon district, S.E., S.A. *South Australian Ornithologist*, 12 (6), 207–211.

McIntyre, A. 1983. A recent record of Little Lorikeets in the South-East. *South Australian Ornithologist*, 29 (3), 73.

Morgan, A.M. 1906. The birds of Kangaroo Island. *Emu*, 5, 224–225.

Newell, H.H. 1927. A list of species of birds seen on Hindmarsh Island, S.A., with remarks thereon. *South Australian Ornithologist*, 9 (1), 29–33.

North, A.J. 1912. *Nest and eggs of birds found breeding in Australia and Tasmania*. Volume 3. F.W. White, Sydney.

Parker, S.A. and Reid, N.C.H. 1983. Birds. In *Natural history of the South East*. M.J. Tyler, C.R. Twidale, J.K. Ling and J.W. Holmes (eds). Royal Society of South Australia, Adelaide, pp. 135–150.
Possingham, M.L. and Possingham, H.P. 1997. Habitat use and abundance of dryland birds in heritage areas in the upper South East of South Australia. *South Australian Ornithologist*, 32 (8), 145–160.
Ragless, G.B. 1978. Meeting 20/1/76. *Bird Talk*, 1 (7&8), 75.
Reid, J.R.W., Barritt, M.K. and Houston, C. 1985. *Birds and habitats of the Bangham district*. Nature Conservation Society of South Australia, Adelaide.
Rix, C.E. 1975a. Meeting 20/11/73. *Bird Talk*, 1 (6), 52.
Rix, C.E. 1975b. Meeting 19/2/74. *Bird Talk*, 1 (6), 54.
Robinson, D. and Traill, B.J. 1996. Conserving woodland birds in the wheat and sheep belts of southern Australia. RAOU Conservation Statement No. 10. Supplement to *Wingspan*, 6 (2).
Rogers, C. 2002. Bird report, 2000. *South Australian Ornithologist*, 34 (1), 1–14.
Rogers, C. 2003. Bird report, 2001. *South Australian Ornithologist*, 34 (2&3), 57–69.
Rogers, C. 2004. Bird report, 2002. *South Australian Ornithologist*, 34 (6), 211–221.
SAOA. 1915. Birds noted by members in the City of Adelaide and the Parklands. *South Australian Ornithologist*, 2 (3), 64–68.
SAOA. 1951. Bird notes. *South Australian Ornithologist*, 20 (2), 22.
SAOA. 1976. Bird notes. *South Australian Ornithological Association Newsletter*, 79, 12.
SAOA. 2004. Bird records. *South Australian Ornithological Association Newsletter*, 190, 21.
Souter, T.G. 1942. Birds of mid-Yorke Peninsula. *South Australian Ornithologist*, 16 (3), 27–30.
Symon, O. 1940. Some birds of the western part of the Fleurieu Peninsula. 1937–39. *South Australian Ornithologist*, 15 (5), 68–72.
Symon, O. 1946. Bird notes on the Old Rectory Farm, Willunga, during 1944 and 1945. *South Australian Ornithologist*, 18 (3), 24–25.
Terrill, S.E. and Rix, C.E. 1950. The birds of South Australia: their distribution and habitat. *South Australian Ornithologist*, 19 (6–8), 53–100.
Weidenbach, W.W. 1930. Bird notes. *South Australian Ornithologist*, 10 (7), 239.
White, S.A. 1919. Birds recorded from the early days up to the present time for the Reed Beds district. *South Australian Ornithologist*, 4 (4), 101–114.

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APPENDIX

Gazetteer of localities cited in the text.

Locality	Latitude, longitude
Adelaide Plains	
Adelaide	34°56'S, 138°36'E
Fulham	34°56'S, 138°31'E
Glandore	34°58'S, 138°34'E
Netherby (AP/MLR)	34°58'S, 138°37'E
Reedbeds	34°56'S, 138°31'E
Stonyfell (AP/MLR)	34°56'S, 138°40'E
Weetunga	34°56'S, 138°31'E
Kangaroo Island	
Willson River	35°52'S, 137°56'E
Mount Lofty Ranges	
Belair National Park	35°00'S, 138°38'E
Blackwood	35°01'S, 138°37'E
Blakiston	35°03'S, 138°53'E
Clarendon	35°07'S, 138°38'E
Encounter Bay	35°35'S, 138°36'E
Gumeracha	34°50'S, 138°53'E
Happy Valley	35°05'S, 138°34'E
Kangarilla	35°09'S, 138°40'E
Morialta CP	34°54'S, 138°43'E
Mt Barker	35°04'S, 138°52'E
Normanville	35°27'S, 138°19'E
Scott CP	35°25'S, 138°44'E
Tea Tree Gully	34°50'S, 138°44'E
Willunga	35°16'S, 138°33'E
Woodside	35°57'S, 138°53'E
Yankalilla	35°27'S, 138°21'E
Murray Mallee	
Bletchley (MLR/MM)	35°14'S, 138°59'E
Hindmarsh Island	35°51'S, 138°40'E
Sutherlands	34°09'S, 139°13'E
Woodchester (MLR/MM)	35°12'S, 138°58'E
South East	
Bangham	36°34'S, 140°56'E
Bangham CP	36°36'S, 140°56'E
Bool Lagoon	37°07'S, 140°42'E
Bordertown	36°19'S, 140°46'E
Cave Range	37°22'S, 140°41'E
Coombe (upper SE/MM)	35°58'S, 140°13'E
Joanna	37°06'S, 140°52'E
Keith	36°06'S, 140°21'E
Lucindale	36°58'S, 140°22'E
Mary Seymour CP	37°10'S, 140°37'E
Mason Swamp – see Joanna	
Mount Gambier	37°49'S, 140°47'E
Naracoorte	36°57'S, 140°45'E
Padthaway CP	36°35'S, 140°32'E
Stony Point	37°03'S, 140°48'E
Struan	37°06'S, 140°47'E
Talapar CP	36°43'S, 140°28'E
Tantanoola	37°42'S, 140°27'E
Thornlea	37°25'S, 140°11'E
Water Valley Station	36°30'S, 140°06'E
Worrolong	37°48'S, 140°51'E
Southern Flinders Ranges	
Back Creek, Wirrabara District	33°01'S, 138°14'E
Mt Remarkable	32°48'S, 138°10'E
Stone Hut	33°06'S, 138°18'E
Wild Dog Creek	32°52'S, 138°14'E
Wirrabara	33°02'S, 138°16'E
Yorke Peninsula	
Maitland	34°22'S, 137°40'E
Victoria	
Rennick State Forest	37°53'S, 140°59'E